Welcome

Welcome to the April 2018 edition of NewWave.

If you have any relevant articles or papers that you would like to be included in future editions, please email them to steve.perring@poole.nhs.uk

******* IMPORTANT REMINDER ******

If you are an accredited independent practitioner, you will need to have submitted your 2-yearly continuous professional development by the end of April

More details on Page 4

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October 2017
# Forthcoming Events 2018:

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<td>12th April 2018</td>
<td>Children’ Anorectal Physiology Service Practical Workshop for Awake High Resolution Anorectal Manmometry.</td>
<td>Wingate Institute London</td>
<td><a href="mailto:CAPS@bartshealth.nhs.uk">CAPS@bartshealth.nhs.uk</a></td>
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<td>18th-20th April 2018</td>
<td>The First Pelvic Floor Summit Advancing the Treatment of Incontinence</td>
<td>International Conference Centre, Telford</td>
<td><a href="http://www.ukcsconferences.com">www.ukcsconferences.com</a></td>
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<td>15th May 2018</td>
<td>HRM &amp; Impedance/pH Study Day, Manchester</td>
<td>Manchester</td>
<td><a href="mailto:info@ardmorehealthcare.com">info@ardmorehealthcare.com</a></td>
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<td>2nd-5th June 2018</td>
<td>Digestive Diseases Week</td>
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<tr>
<td>4th-7th June 2018</td>
<td>BSG Annual Meeting</td>
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<td><a href="http://www.bsg.org.uk/events/bsg-annual-meeting.html">http://www.bsg.org.uk/events/bsg-annual-meeting.html</a></td>
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Accredited Independent Practitioners of the Association of GI Physiologists:
CPD deadline covering the period 1st May 2016 to 30th April 2018

It is that time again, when all Accredited Independent Practitioners of AGIP are required to submit their CPD activity to cover the period 1st May 2016 to 30th April 2018. Please be aware that all AGIP Accredited Independent Practitioners must submit their CPD by the 30th April 2018 in order to maintain their status.

Complete the relevant sections within Form 5 – ‘Continuing Professional Development’. All relevant information can be found here:

http://www.bsg.org.uk/sections/agip-accredited-independent-practitioners/index.html

It is important for practitioners to reflect on any development activity undertaken. A separate copy of the ‘Reflective Practice’ form (pages 4-6) should be submitted for each of the six (3 per year) ‘Reflective Practice’ accounts required for submission.

NB: Each Reflective Practice Account must be signed and dated by the appropriate Line manager (or equivalent senior colleague) and the applicant or they WILL NOT BE ACCEPTED.

Please use the checklist on page 9 to make sure you have completed all the relevant sections before submitting, as incomplete submissions will be returned. Please be aware that the forms must be returned on time or you could be subjected to a late submission fee. Please send completed forms to:

Tanya Miller PhD SRCS
Principle Clinical Scientist in GI Physiology
Oxford Centre for GI Physiology, Pelvic Floor Services & Research
Block 24
The Churchill Hospital
Old Road
Headington
Oxford OX3 7LJ

Maintaining your CPD and submitting evidence for peer assessment every 2 years is the only route that guarantees your status as an Accredited Independent Practitioner with AGIP.
GI Physiology Training Routes

The preferred training route is that of the Scientist Training Pathway (STP) which is co-ordinated by the National School of Healthcare Science (NSHCS) and Newcastle University with input from AGIP. It is a 3 year training course at Masters level (although a 4 year process for training departments) and can be either funded via HEE (direct entry and includes salary and tuition fees) or in-service (trainee is already employed by a trust and tuition fees would be paid for by HEE). This is the route for those who will be undertaking all aspects of GI Physiology which includes breath tests, ano-rectal physiology, endoanal ultrasound, oesophageal manometry and pH/impedance metry. If your trainee is undertaking just an aspect of this such as lower GI only then the Accredited Specialist Pathway (ASP) is the training route for this individual (for GI Physiology this is at scientist level i.e. Masters). Each workplace must look to see what is required for their workforce and an ASP is developed for that need. For example if a department is upper GI only and very much involved with research they may wish to have an ASP that includes research skills (as described below in the ASP pathway).

Below is a timeline of the STP process as well as the entry and training routes for STP and ASP. Please note that the start of the timeline will vary between regions so contact the lead for your regional HEE for healthcare science.

**STP timeline:**  ~July / August Yr 0 Expression of Interest (Eoi) requests sent from local HEE

~~~ > ~October Yr 0 Eoi submission deadline

~~~ > ~Dec Yr 0 notification of success (or not) of funding for your trainee (Eoi)

~~~ > ~Jan Yr 0 national advert goes out, which includes an online ability test

~~~ > ~March / April Yr 0 interviews of STP candidates (direct entry and in-service)

~~~ > ~June / July notification of successful candidates

~~~ > Sept Yr 1 starts, followed by the start of years 2 and 3 in subsequent Septembers

~~~ > July of Yr 3 OSFA final assessments

~~~ > August Yr 3 notification of results and funding ends.

**ASP timeline:** Apply to Newcastle and NSHCS by August. If doing upper GI for example the course is Sept, and introduction to GI is Oct.

~~~ > OSFA July the following year

**Useful contacts**


Newcastle University: pgsclin@newcastle.ac.uk

AGIP Education secretary: Sarah Kelly, sarah.kelly@sth.nhs.uk

HEE: [https://hee.nhs.uk/hee-your-area](https://hee.nhs.uk/hee-your-area)
**STP (GI)**

Entry requirements: BSc in appropriate science subject

Year 1

- 6 week academic block at Newcastle University starts beginning Oct
- Workplace rotations (8-12 weeks each) includes GI (breath tests), urodynamics, either cardiology or respiratory, clinical assessment and investigation

Year 2

- 2x2 week academic block at Newcastle University (usually September and March)
- Workplace 6 month rotation in lower GI (anorectal and EAUS)
- Workplace 6 month rotation in urodynamics
- Plus planning of project starts in year 2

Year 3

- 2 week teaching block at Newcastle University
- Workplace 6 month rotation in upper GI
- 6 month project (university but undertaken in the workplace)

Project due in May
OSFA final practical assessment July

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**ASPs**

Entry requirements: BSc in appropriate subject such as nursing, physio etc. or equivalent (individual may have come up through the apprenticeship scheme or may have many years’ experience but with no formal qualification.

**Upper GI**

Starting Sept, with the potential for the OSFA the following July.

Minimum* includes introduction to GI (breath testing) – 10 credits, and the upper GI module (yr 3 module) – 30 credits
+ online portfolio
+ modified OSFA

**Lower GI**

Starting Sept, with the potential for the OSFA the following July.

Minimum* includes introduction to GI (breath testing) – 10 credits, and the lower GI module (yr 2 module) – 10 credits.
+ online portfolio
+ modified OSFA

*Workplaces can add additional modules to this basic framework to make an ASP that is relevant to their needs. For example if a dept is involved in a lot of research they may wish for their trainee to do the research methods module as well as the above. In the future we will have a bank of ASPs that have been developed for various workplaces which others can choose from.

**Costs:**

- 10 credit module = £435
- 20 credit module = £870
- 30 credit module = £1305

Access to online portfolio which includes competencies, DOPS etc and OSFAs, estimated cost = £1000**

Please note expenses for travel etc is not included in this and would be paid by the trust/organisation or individual. Some trusts may have access to CPD funds.

**This is subject to change**

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Workplace training includes the online portfolio which covers all competencies, DOPS, CBDs etc. This finishes with the OSFA which is a series of stations looking at practical skills that cover the 5 domains of Good Clinical Practice (Professional Practice, Scientific Practice, Clinical Practice, Research, Development and Innovation and Leadership).
Bugs, bowel movements and bloating - Can our gut flora cause constipation and what about methane?

Anthony Hobson
Functional Gut Clinic

The relevance of the gut flora, or microbiome, and its active role in chronic gastrointestinal disorders has been well documented in the scientific literature over the past years. A direct relation between bacteria produced methane and constipation has been determined and observed (1).

What does methane do and how is it produced?

Methanogenesis (the production of the gas methane) in microbes, is a form of anaerobic respiration (respiration in an environment without oxygen, like our intestine for example) and the gas methane is a product of this process. Methanogens (the name of this specific group of bacteria) do not use oxygen to respire, in fact, this is toxic to them and inhibits their growth (2).

In the intestine one specific methanogen, Methanobrevibacter Smithii, has been identified and it’s presence has been associated to constipation (1). In fact, the presence of the gas methane in the intestine, causes a significant reduction of the motility or, in other words, causes constipation. Studies have shown that the higher the level of methane in the intestine, the more severe the constipation is in patients (3).

It has been proven that reducing the levels of methane in the intestine improves the symptoms of constipation and bloating in patients (4-6).
What are the therapeutic options to reduce elevated levels of methane in the intestine?

A well-studied, effective and safe way to reduce the levels of methane in the intestine is to eliminate the source of the methane production, or in other words, kill the methanogenic bacteria with antibiotics. The ideal antibiotic then is a non-absorbable, gut targeted antibiotic, whose aims should not be to eradicate the entire bacterial flora but rather to modify the intestinal microbiology to get symptoms relief (7,12).

Rifaximin is a product of synthesis experiments designed to modify the parent compound, rifamycin, to achieve low gastrointestinal absorption while retaining good antibacterial activity (8-10). Both experimental and clinical pharmacology have clearly shown that this compound is a poorly absorbed antibiotic with a broad spectrum of antibacterial activity, covering Gram-positive and Gram-negative microorganism, both aerobes and anaerobes (8-11). Rifaximin in combination with neomycin (another poorly absorbed antibiotic) has demonstrated the highest efficacy rate in improving bloating and constipation related to elevated levels of methane in the small intestine (4-6).

Treatments in development - A new drug, SYN-010, is currently under development in the US by the company Synthetic Biologics. SYN-010 is a modified-release formulation of lovastatin lactone that is intended to reduce methane production by certain microorganisms (M. smithii) in the gut while minimizing disruption to the microbiome to treat an underlying cause of irritable bowel syndrome with constipation (IBS-C). You can watch the video of SYN-010 mechanism of action at the following link:

Methane and SIBO (Small Intestine Bacterial Overgrowth):

Elevated levels of methane, could be related also to SIBO (Small Intestine Bacteria Overgrowth). SIBO is a heterogeneous syndrome characterized by an increased number and/or abnormal type of bacteria in the small bowel, and it is a well-recognized cause of mal-digestion and malabsorption. SIBO represents an umbrella term, under which some different functional (e.g. irritable bowel syndrome, chronic constipation, diarrhoea) or organic (e.g. inflammatory bowel disease, coeliac disease, diverticular disease, etc.) conditions can be included, as – in each of them – bacterial proliferation (and consequent inflammation) may, at least in part, trigger similar abdominal symptoms (12).

**Intestinal bacteria distribution in SIBO**

![Diagram of normal and SIBO intestinal bacterial distribution]

**REFERENCES:**

4. Low, et al. Gastroenterol and Hepatol 2010
This was the latest in a series of meetings organised to allow all practitioners in GI Physiology to meet in an informal context to learn from local experts in the field and discuss issues of mutual interest.

This meeting was biased towards lower GI as it was organised by the Plymouth Pelvic Floor Unit (attractive and clever logo reprinted below—an example to us all perhaps?) Chris Oppong, lead pelvic floor surgeon argued strongly for an integrated pelvic floor service, including lower GI physiology performed on all patients 6 months following a Grade 3 or 4 obstetric anal injury. Before this they will have had a course of pelvic floor physiotherapy Wes Lai, another pelvic floor surgeon from Plymouth, presented some interesting preliminary data from audit of this lower GI physiology data. There was an intriguing inverse relationship between resting anal sphincter pressure and increase in pressure on squeezing in this group of recent obstetric injury patients. The reason for this is unclear, but since measurements reported were following physiotherapy it might represent variation in engagement with the physiotherapy depending on the perceived severity of the injury.

The new MAPLe targeted pelvic floor EMG measurement and electrotherapy system was presented by Medtronic. It is a very interesting concept. It will be interesting to see how its use develops in this country.

Sean Cochrane, consultant gastroenterologist, presented his experience of performing oesophageal manometry and its impact on treatment of patients with dysphagia, particularly those with Achalasia. Interestingly he would treat patients as for Achalasia even if their integrated relaxation pressure (IRP) was not particularly high as long as other characteristics of the patient’s motility were typical of Achalasia. He would not use botox therapy as a “diagnostic therapy” option but would go straight to definitive therapy, particularly POEM.

Elisabeth Kirton, trainee clinical scientist at UH Bristol presented her experience of her MSc research and preliminary results of her project. She was looking at measurement of straining in lower GI physiology and the effect of blowing up the catheter-tip balloon prior to the strain effort. She was very eloquent about the many obstacles faced when developing a project that requires ethical approval. In particular her experience was that the major barrier to running the project was getting the approval of the local hospital research department and getting hospital sponsorship of the project—a situation that chimes with my experience!

If anyone wishes to join the mailing list for future South West GI Physiology Group meetings, please contact Steve Perring (steve.perring@poole.nhs.uk)
NEWS RELEASE

The Registration Council for Clinical Physiologists gains Professional Standards Authority accreditation

The Registration Council for Clinical Physiologists (RCCP) has gained Professional Standards Authority (PSA) accreditation.

Patients are able to choose a clinical physiologist belonging to a register vetted and approved by the Professional Standards Authority for Health and Social Care, an independent statutory body, accountable to Parliament. The RCCP’s register has been accredited under the Accredited Registers programme. Clinical physiologists on the RCCP’s register will be able to display the Accredited Register quality mark, a sign that they belong to a register which meets the Professional Standards Authority’s robust standards.

Trefor Watts, RCCP Chair said: “Following rigorous assessment, we are delighted that our commitment to patient safety and high professional standards has been recognised by the PSA. The quality mark will give extra peace of mind for anyone looking for a clinical physiologist, letting them know that anyone who holds the mark is committed to high standards. The RCCP is pleased to offer the quality mark to clinical physiologists that meet the far reaching standards of our register, as approved by the Professional Standards Authority.”

Harry Cayton, Chief Executive of the Professional Standards Authority said: “We are very pleased to accredit RCCP’s register of clinical physiologists. Bringing clinical physiologists into a broad framework of assurance is good for patients, service users and the public and is the best way to promote quality. The programme offers a new layer of protection for anyone looking for health and social care services, and gives clinical physiologists the opportunity to demonstrate their commitment to good practice.”
Budding Reviewers

If you attend a meeting and wish to review a presentation at that meeting in a future edition of NewWave, please contact the NewWave editor (steve.perring@poole.nhs.uk)

Help-out the rest of us who did not manage to get to the meeting

Accreditation means that RCCP’s register meets the Professional Standards Authority’s high standards in governance, standard-setting, education and training, management of the register, complaints handling and information.

Accredited registers encompass a growing range of occupations and organisations and the Professional Standards Authority may accredit more than one register in any particular occupation. Further information about Accredited Registers is available at http://www.professionalstandards.org.uk/accredited-registers

The RCCP holds a voluntary register for practitioners in six disciplines of Clinical Physiology. Its aim is to ensure the highest levels of safety for patients of clinical physiologists.

For further information about the RCCP visit www.rccp.co.uk

Congratulations!

Congratulations to Vicky Ritchie, Principal GI Clinical Physiologist/Laboratory manager at Aberdeen Royal Infirmary for claiming the inaugural Graeme Duthie International Award

She will be attending the DDW meeting in Washington in May and presenting a paper. We will include a summary of her research and a review of the meeting as a whole in a subsequent edition of NewWave
This was the second such Masterclass and there was an excellent programme of speakers followed by breakout discussion groups on specific topics. I attended with our trainee and one of our GI consultants who has agreed to mentor her and saw this as an opportunity to learn more about the tests and bring himself up to date. The attendance was broadly 50% each physiologists and 50% clinicians wanting to learn more, so our doctor did not feel out of place.

We started with a presentation from Anthony Hobson going through the USA Consensus document on Hydrogen/Methane breath testing and its implications for the UK. He compared the USA consensus with what is generally considered to be best practice here in the UK and said that there was broad agreement. He finished by stating that the AGIP position is under review and suggested a UK wide consensus group would be good followed by feedback to the BSG.

Stephen Attwood presented the final draft of the BSG guidelines on HRM. These will be circulated soon for discussion (in fact I received a copy from one of my consultant colleagues this week asking if I had any comments). The BSG agrees that HRM is superior to conventional manometry and all centres should be making the investment to acquire the new systems. Specifically it is superior for dysphagia, there is improved reproducibility, greater speed, better ease of interpretation, especially with the diagnostic algorithm of Chicago 3 which specifies specific major dysmotilities. The case for combined HRM with impedance measurement has not as yet been made as there are no outcome studies that would recommend its use in routine clinical practice. The guidelines should be published in late 2018.

Rami Sweis presented ‘HRM and Chicago: Seeing the Wood for the Trees’ and covered what he sees as being the most important features that we should all adopt in our practice. He acknowledged that there are some elements of Chicago that are still not perfect, but the distinction between major and minor motility disorders is very helpful and does aid both diagnosis and treatment decisions. He emphasised the importance of adjunctive tests in order to try and provoke symptoms and also find LOS abnormalities that might be missed with simple 5ml water swallows. His concluding slide was a good summary of his talk:

The best test technique (according to Rami!)

- Test what is relevant, using your best kit and take your time (DON’T rush)
- Try to elicit/reproduce symptoms – try to use at least 1 adjunctive test
- Try to answer the question being asked; not with a list of numbers that are outside the normal range
- Make sense of results and try to ‘describe’ what is happening
• Don’t propose definitive therapy especially if you have no experience in observing the outcome or performing it yourself (manometry is not the only test)
• Where possible, have the report read/signed off by a physician/surgeon who has experience in applying therapy that is being proposed
• Keep language open
• Try to find a mentor to ask/reconfirm where traces are uncertain (does not need to be in the same institution)

Phil Woodland presented on current treatment options for Chicago Classification Disorders. This is always useful for physiologists as although we don’t usually carry out or specifically advise on treatments it is good to know what current practice is. Patients often ask us what might happen next and if a discussion has already taken place with a clinician we can answer their questions confidently.

One theme that was common in several presentations was the issue of opiates use. Patients who take a lot of pain relief (not necessarily for GI problems) can have findings or symptoms that mimic Achalasia, so we should be aware of that when taking histories.

There followed a series of short break-out sessions which covered basic and advanced HRM and pH/Impedance monitoring as well as opportunities to question Anthony or Rami about specific points we wished raised.

The final few presentations covered updates on IQIPS, RCCP, ASSP and AGIP.

Overall it was a comprehensive programme which covered all aspects of Upper GI Physiology. My medical colleague found it very interesting and was especially impressed by the knowledge of the physiologists present. I hope that he has fed back to his colleagues about how brilliant we all are! Our trainee also found it very useful and was delighted at how much more she understood this time than a year ago, when she was still relatively new.

Researchers

We would be very interested in presenting a summary of your original research or audits in NewWave. In particular if you or a colleague are a trainee or recently qualified clinical scientist, we would be very interested in the results of your research project.
Case Study—Changes in apparent motility with time

Steve Perring

73 year old female with reflux symptoms including left-sided abdominal pain, worsened by lying on front, heartburn and nausea. Incomplete response to PPI therapy. Some dysphagia.

Figure 1. 2.5 minutes post-intubation. Wet swallow showing incomplete LOS relaxation (IRP 13mmHg) and absent peristalsis.

Figure 2. 5 minutes post-intubation. Wet swallow (part of formal assessment of motility) showing slightly better but still incomplete LOS relaxation (IRP 11mmHg) and still absent peristalsis.
Figure 3. 7.5 minutes post-intubation. Wet swallow showing incomplete LOS relaxation (IRP 12mmHg) but adequate peristalsis (DCI 1164mmHg.cm.s) and drop in intra-oesophageal pressure following successful peristalsis.

Figure 4. 12 minutes post-intubation. Solid swallow showing effective LOS relaxation (IRP 4mmHg) and some peristalsis (DCI 396mmHg.cm.s) and drop in intra-oesophageal pressure following peristalsis.

There was a step-change in effectiveness of the motility in this patient from approximately 6 minutes post-intubation, with the emergence of propagating peristalsis and effective bolus clearance indicated by a drop to normal intra-oesophageal pressure following passage of the peristaltic wave. This can be seen at point A on the raw recording of the whole study (Figure 5). However motility was still generally poor (mean DCI on wet swallowing 177mmHg.cm.s, failed contraction 54%). Motility was similarly poor for solid swallows (from point B on Figure 5). Mean DCI on solid swallows was 149mmHg.cm.s, failed contractions 70%). Multiple wet swallowing resulted in failed peristalsis and bolus clearance (marked C on Figure 5), again resolved following a subsequent wet swallow (marked D).

Clearly this patient has abnormal motility (ineffective motility as defined by Chicago Classification), but motility substantially improved on that displayed in the first 6 minutes, which was suspicious of possible Achalasia.
Figure 5. Raw display of the whole manometry recording

**Take-Home Messages**

- The oesophagus does often take time to settle following the trauma of NG intubation.
- During this period the oesophageal stasis observed can look suspiciously similar to Achalasia.
- This study reinforces the value of adjunctive tests including solid swallows and multiple wet swallows.
- As Rami Sweis is quoted as saying elsewhere in this publication, “take your time”